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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,003	06/16/2004	Peter B. Kenington	46309-251562	3115

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EXAMINER	
SHINGLETON, MICHAEL B	

ART UNIT	PAPER NUMBER
2815	

MAIL DATE	DELIVERY MODE
03/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/743,003	KENINGTON, PETER B.	
	Examiner	Art Unit	
	Michael B. Shingleton	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01-07-2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-23 and 29* is/are pending in the application.

4a) Of the above claim(s) *5-9,12,17-20,22 and 23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,11,13-16,21 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

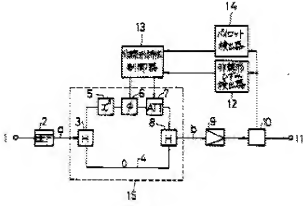
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

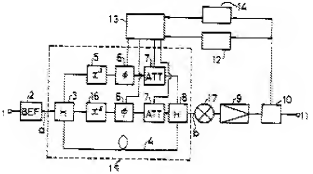
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 11, 13-16, 21 and 29 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Nojima et al. JP356085909A (Nojima).

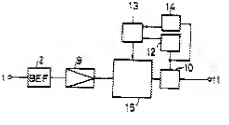
第 1 図



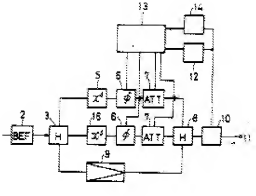
第 4 図



第 5 図



第 6 図

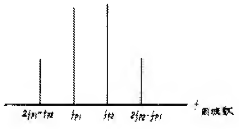


Figures 1, 4, 5 and 6 and the relevant text of Nojima all disclose a predistorter arrangement which is for "linearising" (Applicant's spelling for representing the ideal of "making linear".). Nojima clearly detects the presence of specific orders of distortion derived from the pilot signal so as to produce an error correction signal that is for controlling the processing of the input signal in the predistorter means. The examiner will specifically refer in the following to the element numbers in Figure 4, but applicant should be aware that the other Figures of Nojima would meet the claimed invention, as it is readily apparent that the same analysis will apply to these other Figures mentioned above.

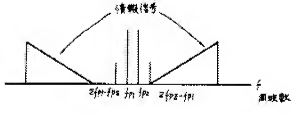
Element 15 of Nojima forms a predistortion means that takes an input signal at terminal 1 and adds at least one pilot signal via element 2. The "distorting element" is an amplifier 9 in Nojima. Elements 12, 13 and 14 form an error correction means that as noted above detects in combination with the element 10 the presence of specific orders of distortion derived from the pilot signal so as to produce an error correction signal that is for controlling the processing of the input signal in the predistorter means.

There is inherent cross-modulation of the input signal on the pilot and there is intermodulation of the pilot signal as is shown at least in part by Figures 2 and 3 of Nojima. Thus the error correction means with element 10 detects or is adapted to detect the presence of distortion signals derived from cross-modulation of the input signal on the pilot signal and detects the presence of distortion signals derived from intermodulation of the pilot signal. There is no specific definition of cross modulation and all that applicant shows is frequency bands around the pilot signal(s) what as shown below is what the prior art discloses. Previously the claims contained this language or similar language that was very broad in scope. Just because something inherently detects these things does not mean that any thing is done with these things, however, as the claims are now written the prior art does detect the cross-modulation and does correct for it in the feedback loop. Also as noted applicant just does not define the term cross-modulation and from page 22 of the specification it is clearly apparent that the prior art is doing the same thing as that of applicant.

第 2 図



第 3 図



The path denoted by element 4 can be read as the input signal path that does receive the input signal that is required to be processed by the amplifier 9 (distorting element). The path that includes elements 5-7 forms a distortion path "in which an input signal from the input signal path is processed to generate a distortion signal" and this distortion signal is combined with the input signal via element 8 to produce the predistorted input signal to the amplifier 9 (distorting element).

Note the phase and amplitude adjusters 6 and 7 of Nojima.

With respect to claim 24 applicant names the circuit that includes the pilot generator means a "control circuit". The structure recited by claim 24 is present in Nojima no matter what name applicant intends to give this structure. As noted above element 2 is a pilot generator that combines the input signal with at least one pilot signal. There is an error correction means as noted above and includes at least elements 12-14. This error correction means is clearly for coupling to an output of the amplifier (distorting element) and to detect the presence of specific orders of distortion derived from the added pilot signal, and for coupling to "adjustment" circuitry. Elements like 6 and 7 are clearly "adjustment"

circuitry in the predistorter section that adjusts the predistorter in dependence on the detected distortion signals.

The structure described above inherently provides for the method steps recited in the method claims that include claim 21. As noted above but is recited here in different wording the input signal at terminal 1 is processed via elements like 5-7 to produce a predistorted input signal that is supplied to the input of the distorting element, i.e. amplifier 9. Element 2 is a pilot generator and as such a pilot signal is generated in the input signal. The error correction structures that includes elements 12-14 provide for an error correction step in which the presence of specific orders of distortion derived from the pilot signal in the distorting element 9 output is detected to produce an error correction signal that controls the step of processing the input signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nojima et al. JP356085909A (Nojima).

Claim 3 adds the use of a pilot remover that can be down stream the detection device. Such use of filters etc. to remove the pilot signal so that the pilot signal will not interfere with the output signal is well known in the art. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a pilot signal remover so as to ensure the removal of the pilot signal prior to the final output terminal of the device of Nojima.

Applicant's arguments with respect to the claims of record have been considered but are moot in view of the new ground(s) of rejection. However, the examiner finds the 132 affidavit unpersuasive because it is the opinion affidavit and does not show or actually build the prior art circuit. A convincing showing of proof that that prior art does not even in a very small sense reduce so called cross-modulation by the prior art. As the examiner has a reasonable basis for asserting that there is some reduction in cross-modulation the burden of proof has shifted to applicant to prove otherwise. Again "The fact is that it appears that the specification and in particular page 12 of the original specification just does not define exactly what applicant intends to mean by "cross-modulation". Thus the examiner must give the broadest

reasonable interpretation to the claims. The prior art calls these frequency bands around the pilot signal "intermoduation" or "orders of distortion". One can call these items in the prior art "cross-modulation". In further support for this definition page 22 of applicant's own specification specifically refers to these frequencies band around the pilot signal as "IMD" i.e. intermodulation. From this the prior art is detecting and correcting for the same distortion as that of applicant's invention." The amended claims are again very broad even though they corrected some of the excessive breath of the previous versions. These claims still just claim sensing the output of the main amplifier adjusting the predistorter to correct for non-linear effects like intermodulation as mentioned above which is all a part of the prior art. Also claims drawn to structure must be distinguished by structure and not function See MPEP 2114 and what is needed here is actual structural differences to be recited in the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571) 272-1770.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker, can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS
February 27, 2007

October 11, 2007

/Michael B Shingleton/
Primary Examiner
Group Art Unit 2815